

Project

Urban-Move

utilising urban observational data to enhance the
complexity of agent-based pedestrian
simulations

in collaboration with





T O K Y O , J A P A N



HOW WOULD YOU FEEL?

claustrophobic?

trapped?

uncomfortable?

AS DESIGNERS ...

what would you change? how would you change it?

what is driving the decision to change?

ISSUE

traditional observational methods of collecting urban space data can be expensive, time consuming and labour intensive

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current pedestrian lack contextual and individual granularity

AIM

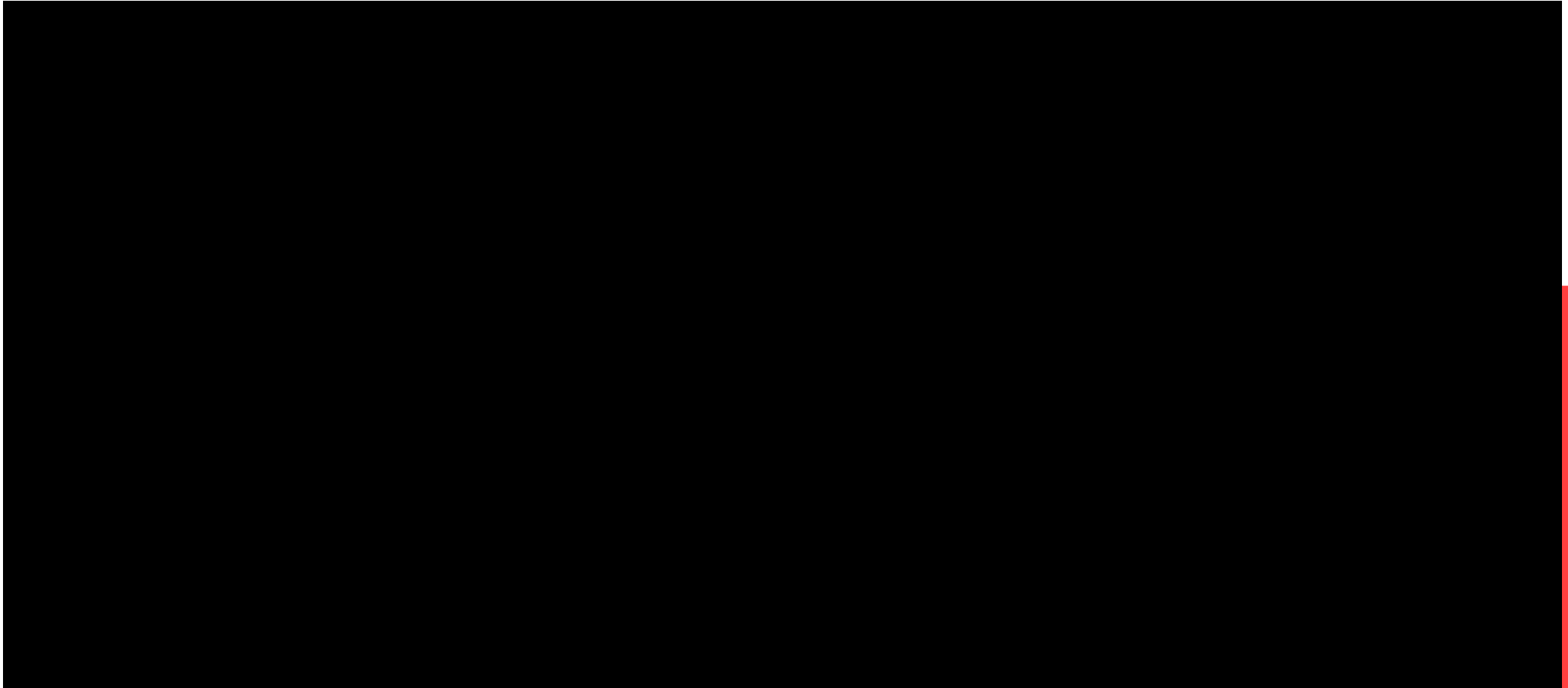
to expand the complexity of agent-based simulations
towards informing architectural and urban design decisions

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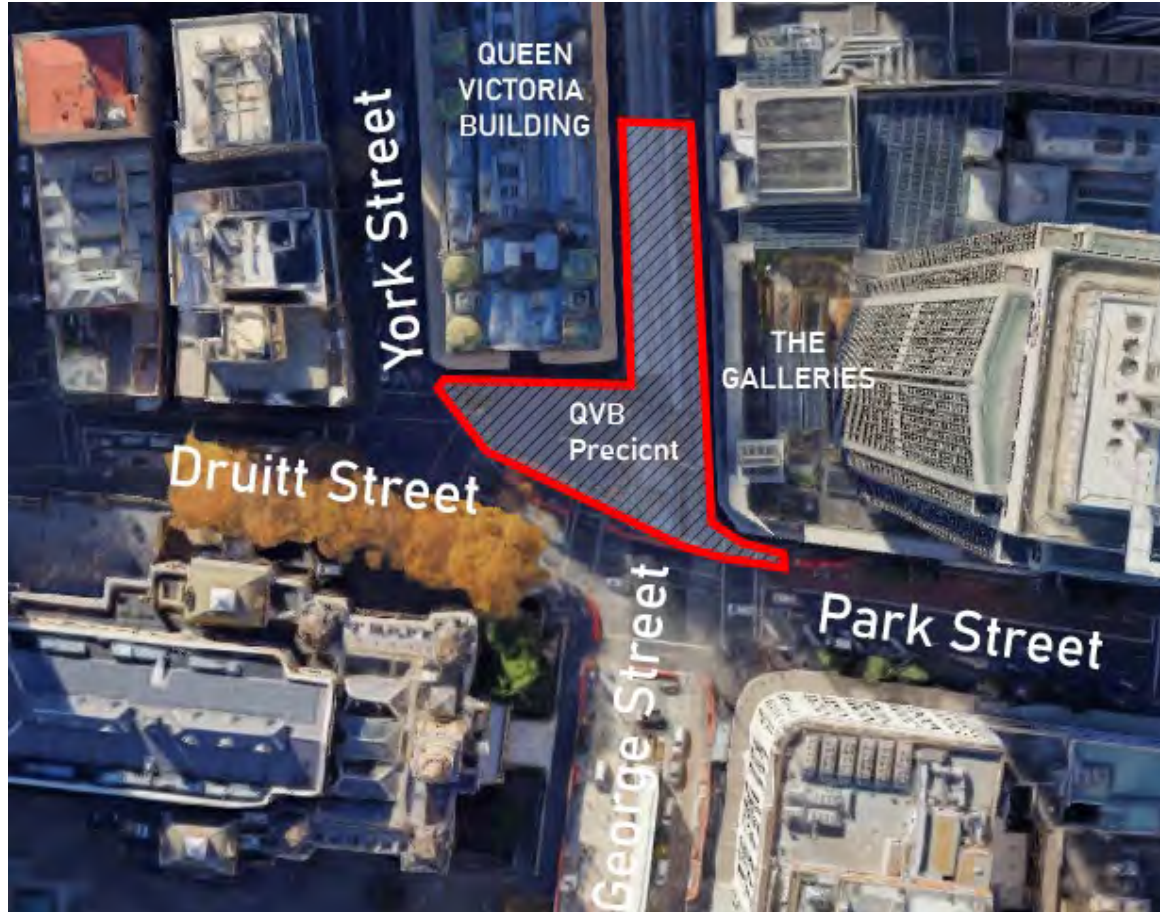
making more data driven decisions for design in optimising
urban spaces

Agent-Based Simulations

Build: Beta 2.2



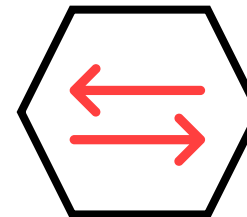
Queen Victoria Building Precinct



Landmarks



Central



Changes

Background Theory

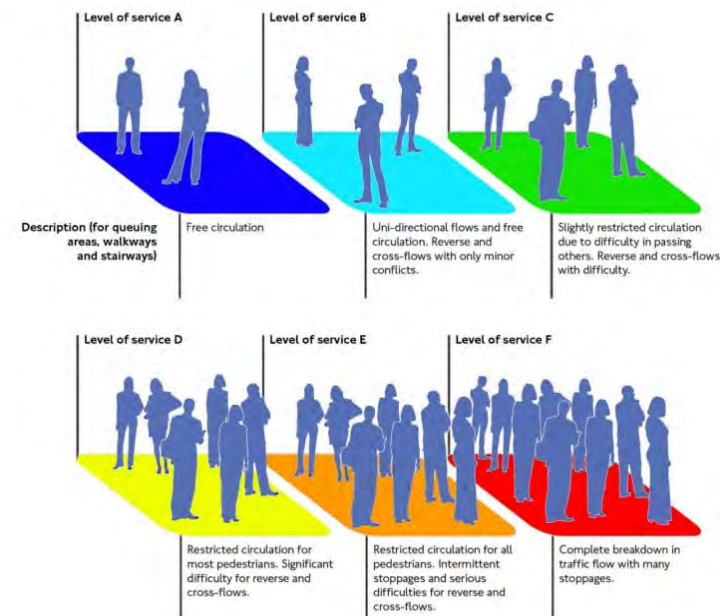


Mental Maps

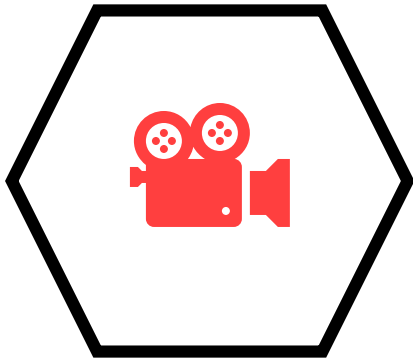
Kevin Lynch

Level of Service

John Fruin



Phase I



Real-Time Data

Observing a space in real-time through video recordings at different times of day.

Phase II



Agent Simulations

Creating complex simulations through agent-based thinking.

Phase III



Analysis

Understanding the data shown and providing future insight.

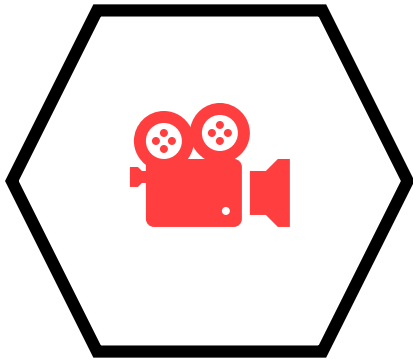
Morning Observation



Afternoon Observation



Phase I



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How They Work

May the Force(s) be with you

Attraction



Anticipation



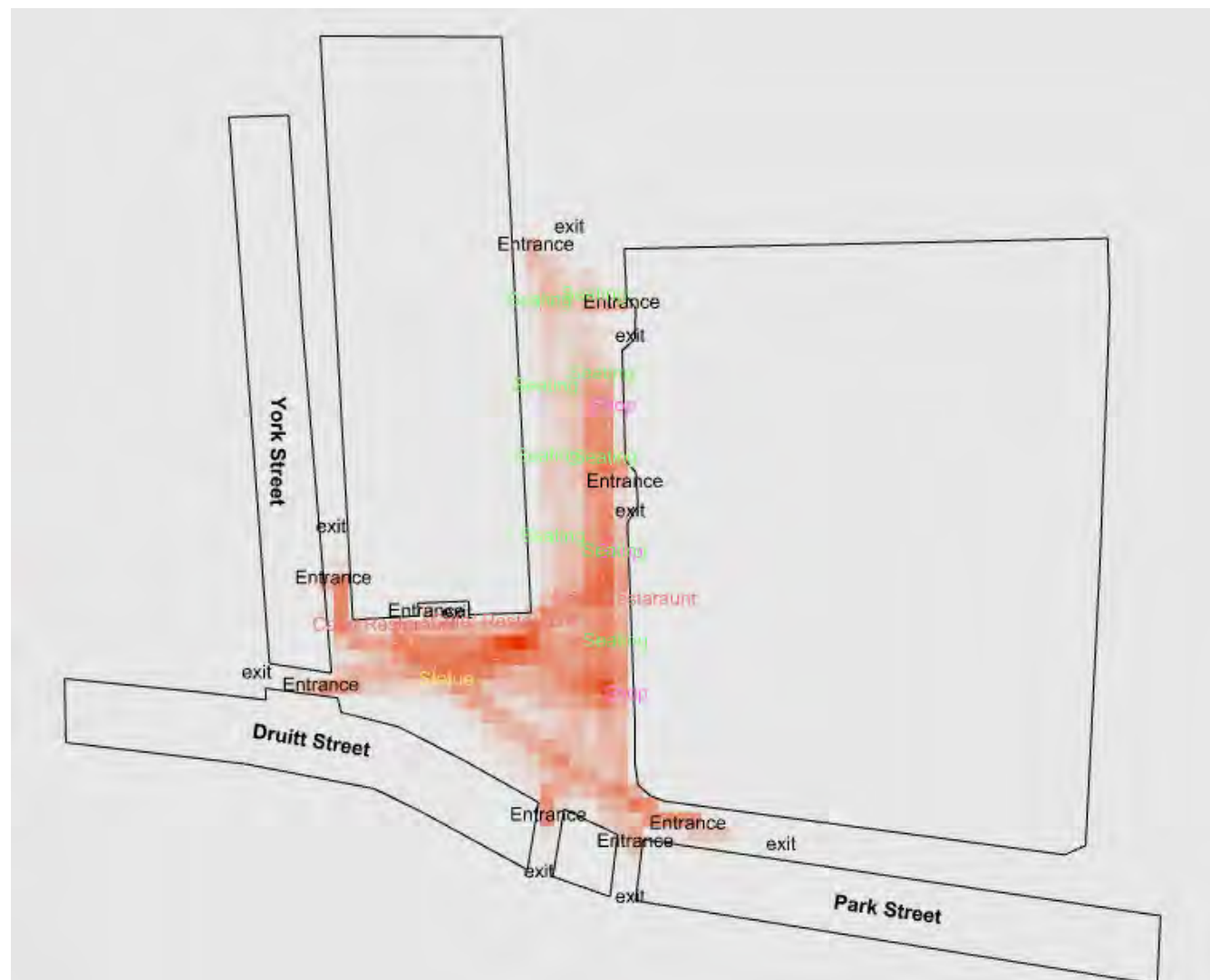
Avoidance



Beta 1.5

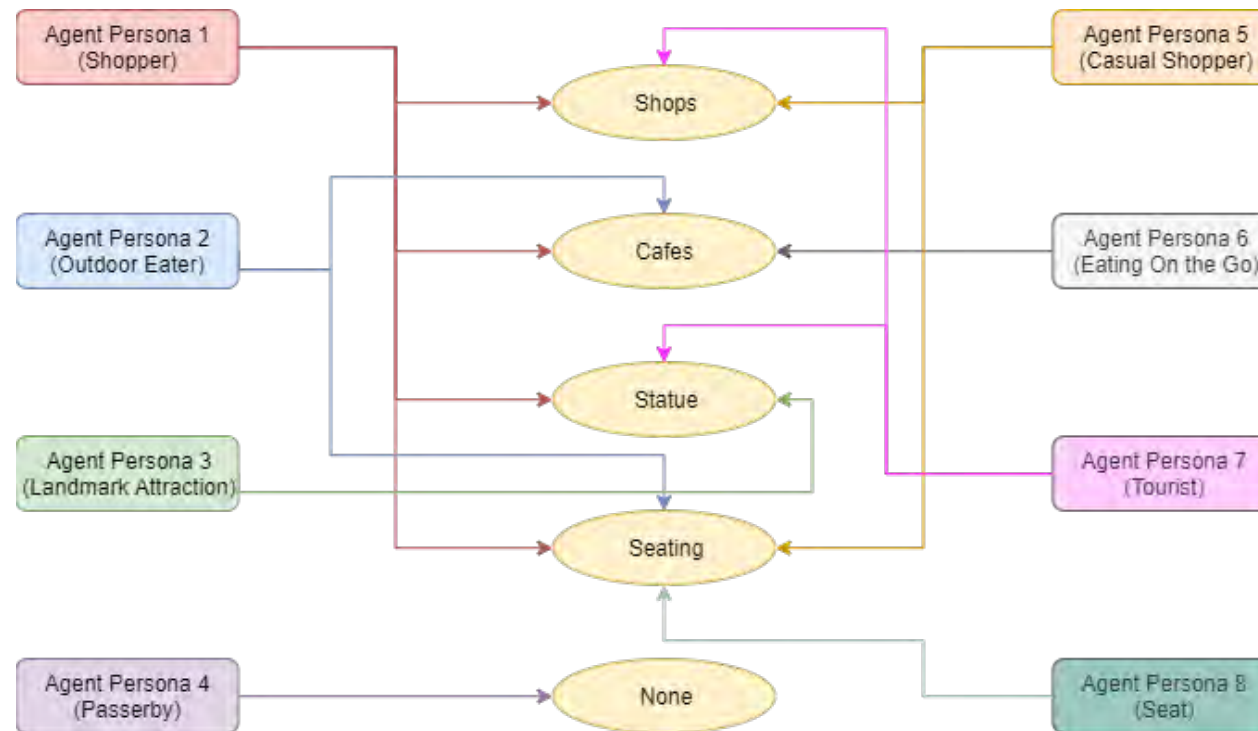


Beta 1.5

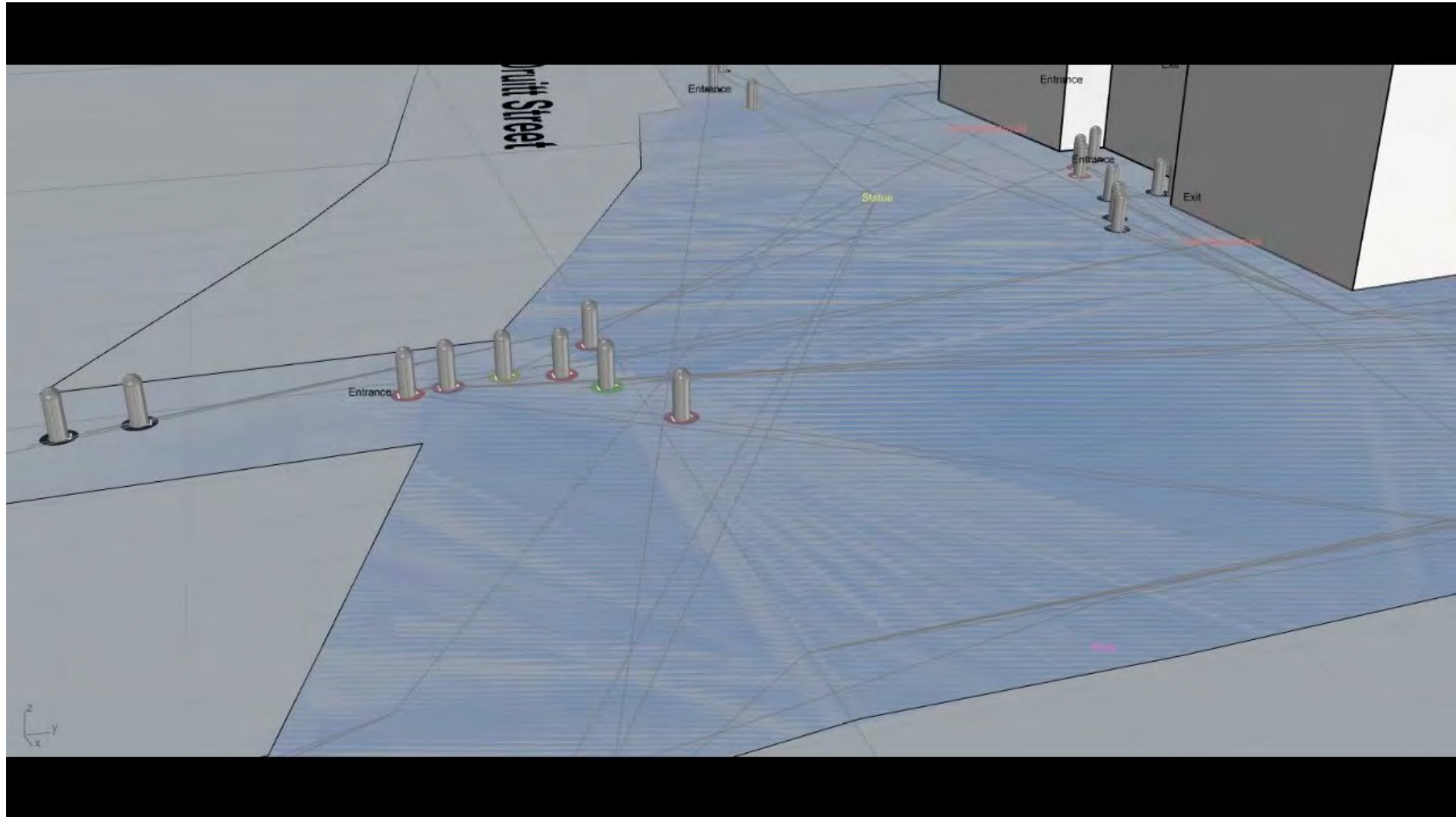


Agent Mapping

Version 1

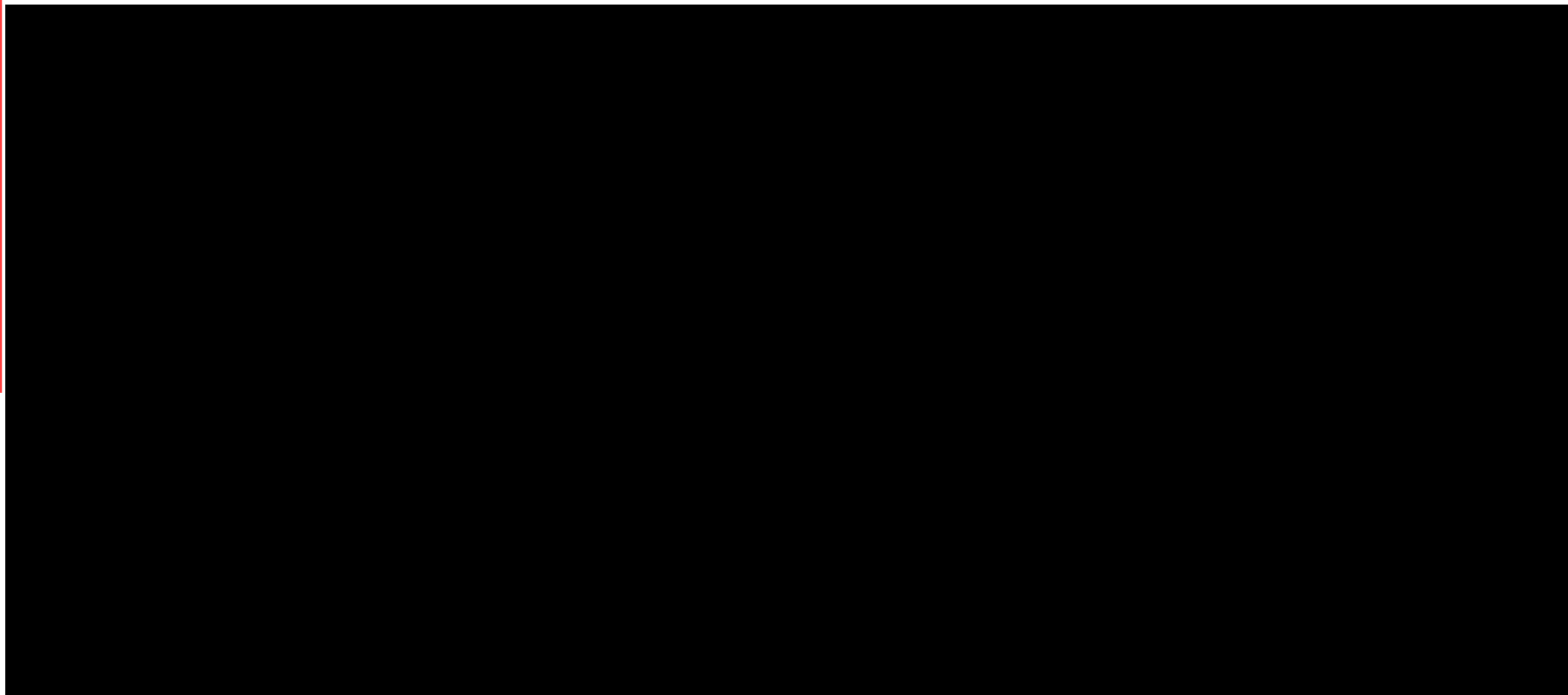


Beta 2.0



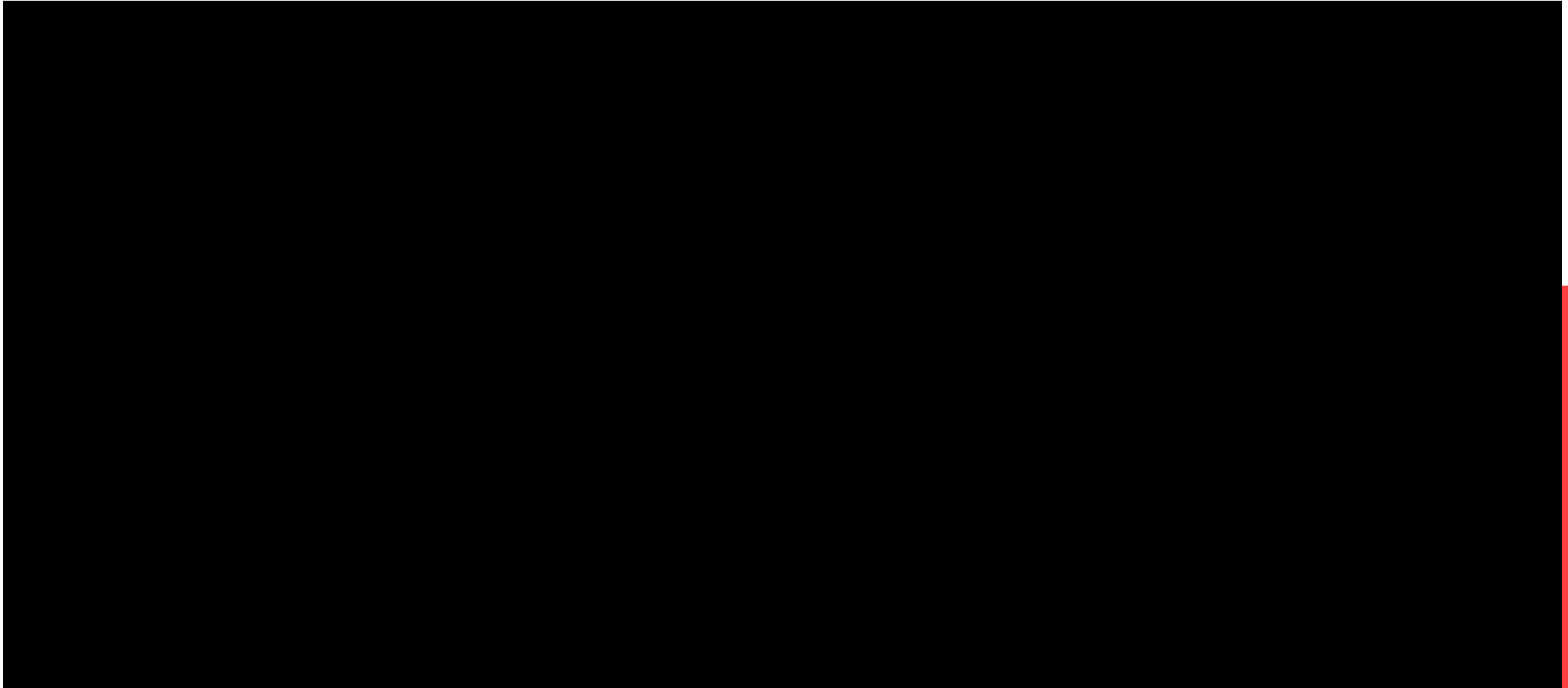
Beta 2.0.1

Peak Period



Beta 2.0.1

Non-Peak Period



Beta 2.1

Non-Peak Period



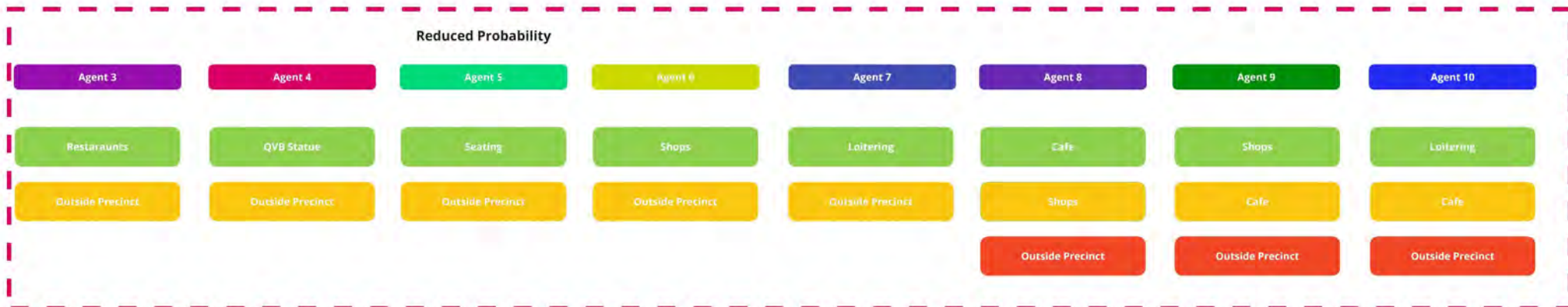
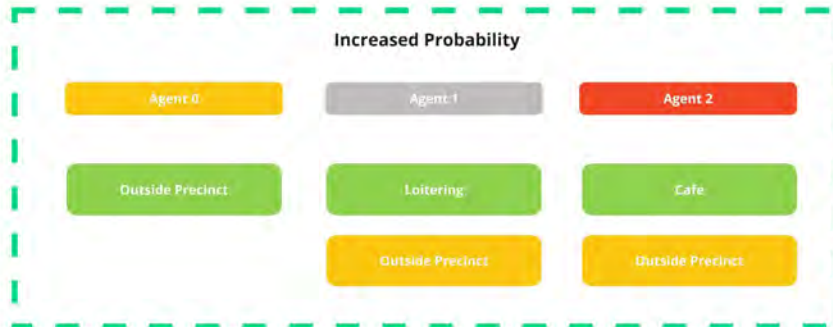
Beta 2.1

Peak Period



Agent Mapping

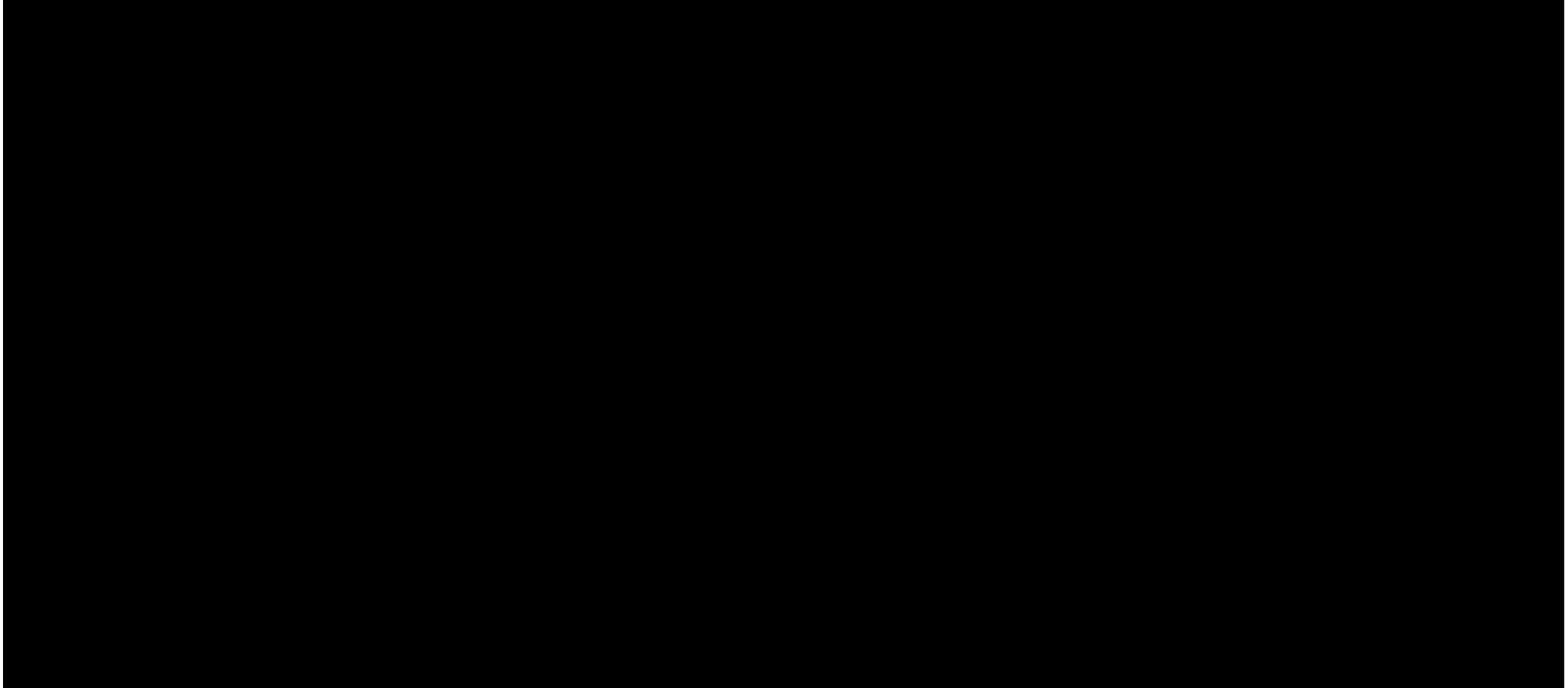
Version 2





Beta 2.2

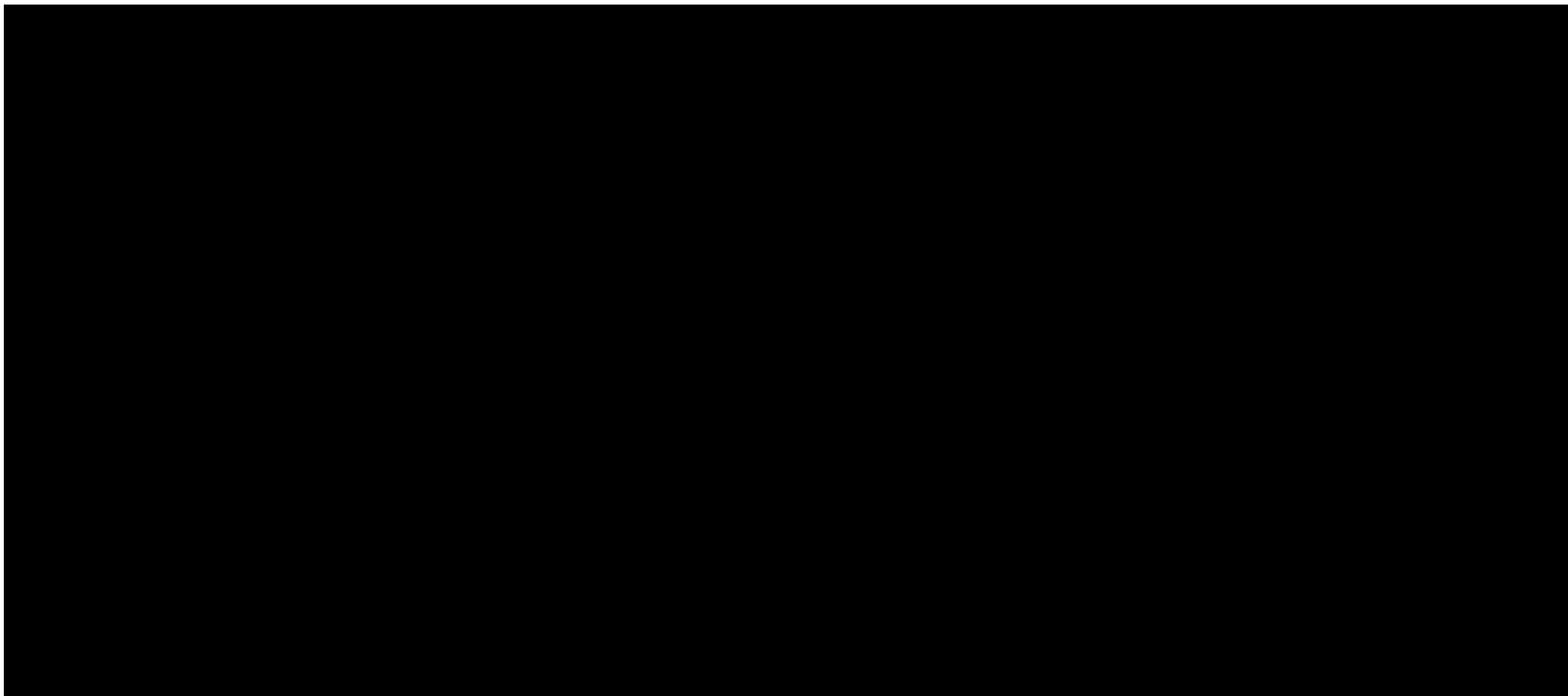
Situation 2 – (Sit) Down with the Queen



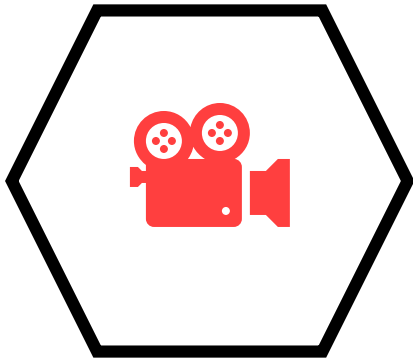


Beta 2.2

Situation 3 – Who needs Light Rail?



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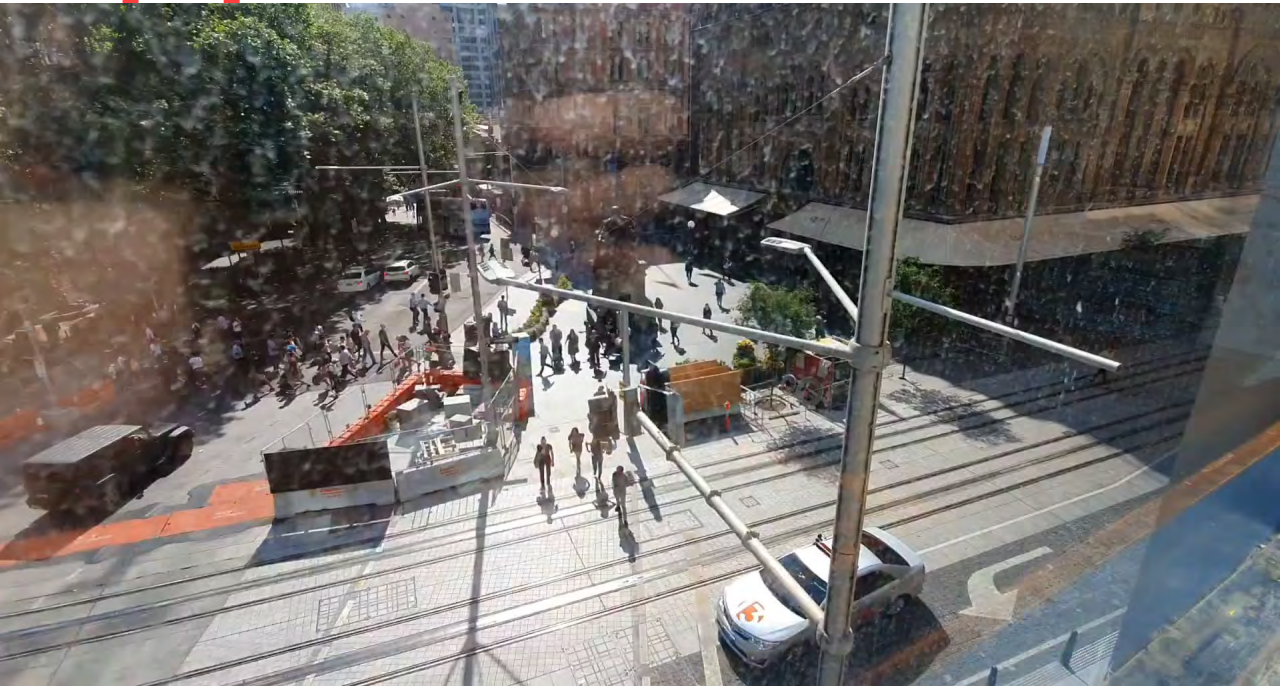


Analysis

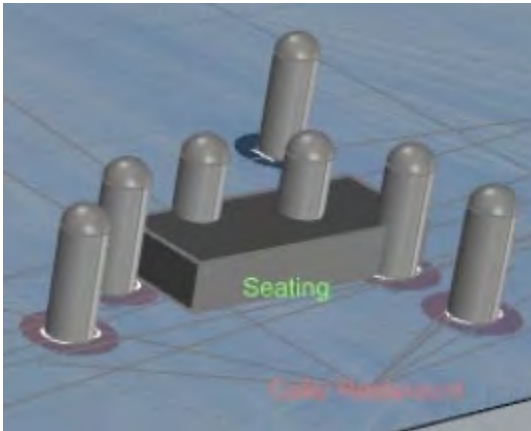
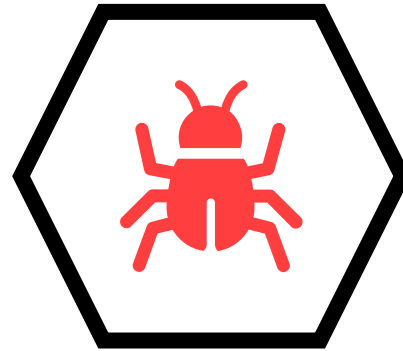
Understanding the data shown and providing future insight.

Compare the Pair

Same Age, Same Place, Same Statue



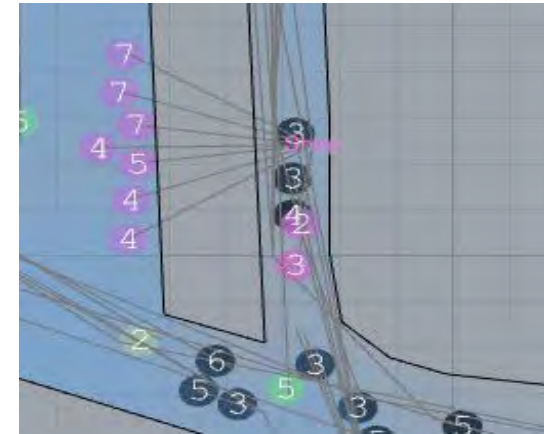
Bugs



crowding

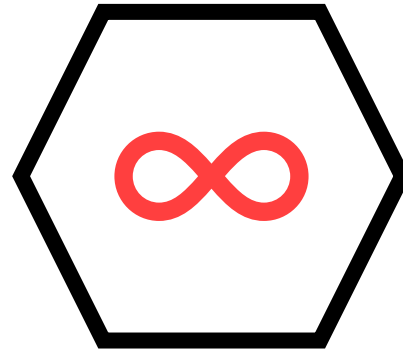


accidental loitering

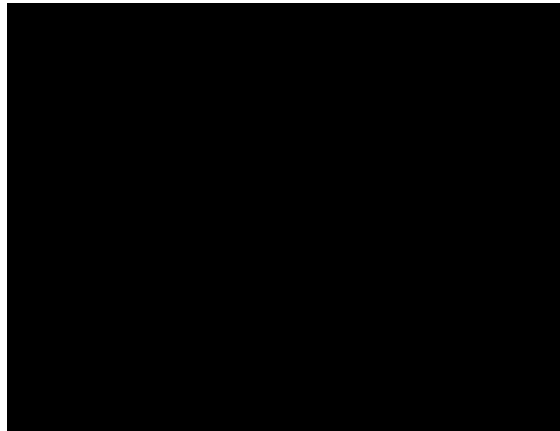


limited intelligence

Limitations



personal space

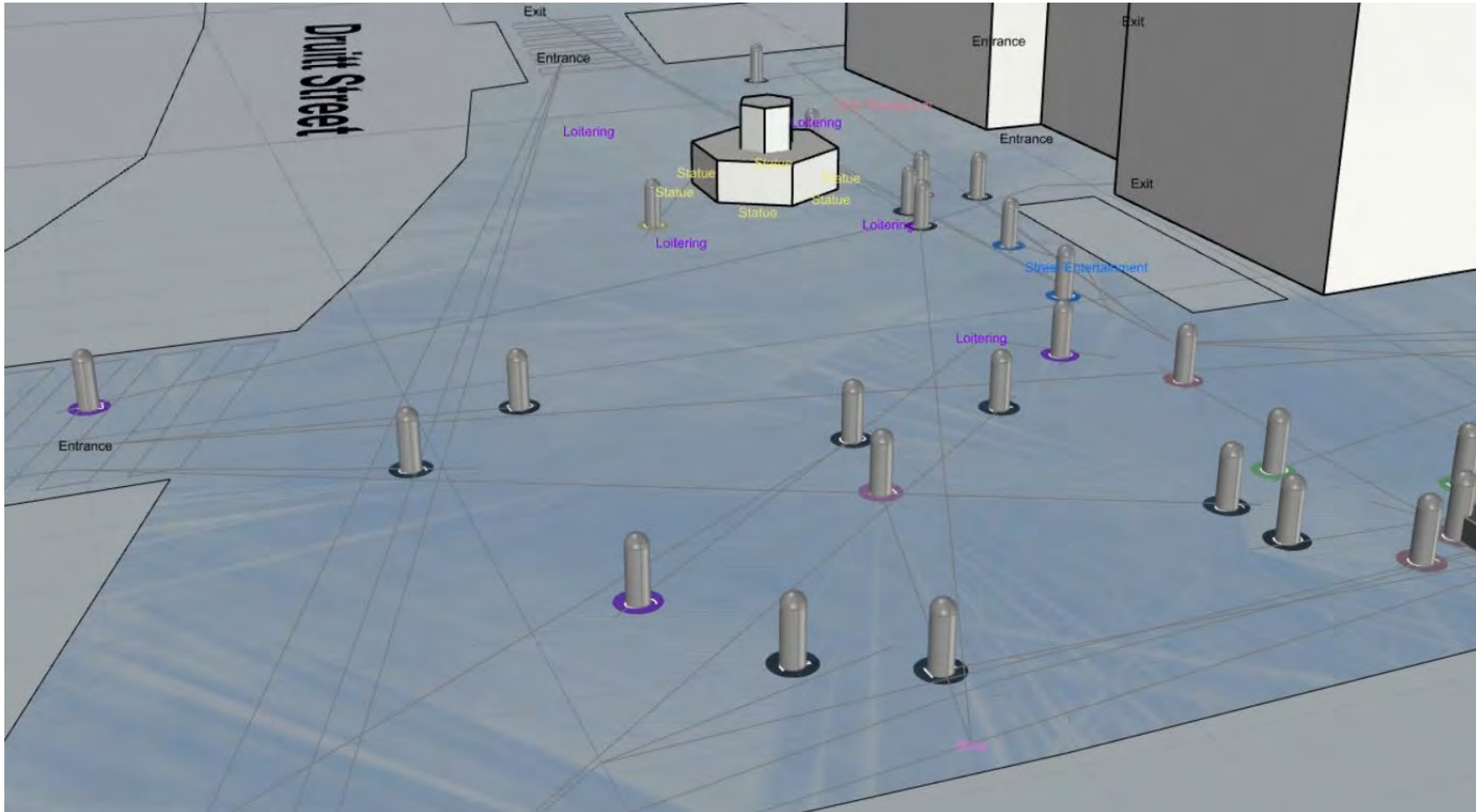


traffic light flow



lack of groupings

Limitations



Benefits

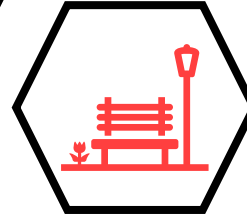
Observational Data

Critical to have as a precedence to agents.



Different Scenarios

Can be applied to similar urban spaces.



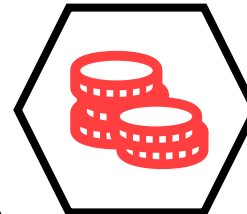
Optimisation

Inform designers current or future problems.



Cost/ Benefit

Save time and money, rather than going to site all the time.



Easy to Use

Observing a space in real-time through video recordings at different times of day.

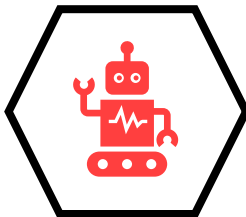
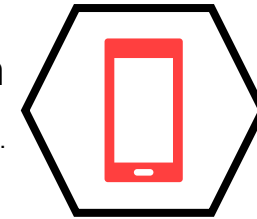


Future Studies



Telecommunication Data

Inform designers current or future problems.



Machine Learning

Can be applied to similar urban spaces.



ETHAN



GONZAGA

egonzaga.myportfolio.com

Thank You

acknowledgments to

Nicole Gardner, Hank Haeusler, Yannis Zavoleas, Brian
Smith & Many Others from UNSW, WSP & Lendlease